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varied types, presenting ecological problems of peculiar interest. The more xerophytic type of such grassland has been studied in South Boulder Park by RAMALEY[5] and by him designated "dry grasslands" in contrast to the more mesophytic "meadow." One of the most interesting problems of the park is the relationship of these two phases of grassland, and one must regret that it has been so slightly touched upon in the present paper. Another deficiency is the limited number of data regarding the environmental factors. Some soil moisture studies seem to show that the growth water is not abundant in any association, although unfortunately the relationship of the soils of which wilting coefficient determinations were made and those whose water content were studied is not clearly apparent. Wilting coefficients ranging from 3.5 to 7.6 indicate to some extent the coarse texture and low water-retaining power of the soil which, combined with such climatic factors as short summers, high winds, and an annual rainfall of 28 inches, tend to retard the development of mesophytic vegetation.

A most interesting seasonal succession is described, ranging from a prevernal period extending from May 1 to June 15 and characterized by the blooming of *Mertensia Bakeri* and *Thlaspi purpurascens*, through well marked vernal, early and late aestival, to an autumnal in which the bloom is almost entirely limited to late grasses and blue gentian.

The series of associations involved in the xerarch succession here in progress proceeds from one characterized by *Erigeron multifidus* and *Selaginella densa* on recently exposed soil, through others in which *Carex stenophylla* associated with certain Leguminosae and Compositae such as *Aragallus Lambertii* and *Chrysopsis villosa* gradually give place to others in which grasses become increasingly abundant and important. The author regards the ultimate grassland vegetation as an association in which the grasses represented by species of *Muhlenbergia*, *Danthonia*, *Poa*, and *Festuca* predominate. Whether this will pass eventually to the more mesophytic meadow, and it in turn be replaced by forest, seems at present to be a probability not demonstrated. In spite of this and other unsolved problems, the present discussion, together with the careful analyses of the same author[6] previously published, very greatly advances our knowledge of these interesting grasslands.—GEO. D. FULLER.

Taxonomic notes.—BERRY[7] has described a new species of *Zamia* (*Z. mississippiensis*) from the Lower Eocene of Missisippi. It has "slender, graceful leaves and much reduced pinnules suggestive of *Z. floridana*."

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[5] RAMALEY, F., Dry grasslands of high mountain park in northern Colorado. Plant World **19**:249–270. *figs. 6.* 1916.

[6] ———, The relative importance of different species in a mountain grass-land. BOT. GAZ. **60**:154–157. 1915.

———, Quadrat studies in mountain grassland. BOT. GAZ. **62**:70–74. 1916.

[7] BERRY, E. W., A *Zamia* from the Lower Eocene. Torreya **16**:177–179. *figs. 3.* 1916.

BLAKE,[8] in "A revision of the genus *Polygala* in Mexico, Central America, and the West Indies," recognizes 137 species, 39 of which are described as new. There are also numerous new combinations and new names, and a general reorganization of the classification.

BRITTON,[9] in connection with an account of the vegetation of "the little known island of Anegada," one of the Virgin Islands, has described a new *Acacia* (*A. anegadensis*) and a new lichen (*Arthonia anegadensis*).

BRITTON,[10] in his eighth paper on West Indian plants, describes a new *Cyperus* from Jamaica; lists the West Indian species (16) of *Stenophyllus*, including a new species; lists the Cuban species (15) of *Galactia*, with 4 new species; lists the Cuban species (5) of *Machaonia*, with 2 new species; presents the Cuban genus *Heptanthus*, recognizing 6 species, 5 of which are new; and publishes 5 new species from Porto Rico, 9 new species from Cuba, and 21 new species from the Isle of Pines, by several specialists.

BURT,[11] in continuing his studies of North American Thelephoraceae, has monographed the genus *Hypochnus*, recognizing 31 species, 13 of which are new species, and 12 are new combinations.

BURT,[12] in his seventh paper on the Thelephoraceae of North America, presents the genus *Septobasidium*. It does not belong to the Thelephoraceae, because its basidia are not simple, but it is included "merely for the convenience of students of the Thelephoraceae." The North American forms include 17 species, 10 of which are described as new.

CHRISTENSEN[13] has described a new genus (*Maxonia*) of ferns founded on *Dicksonia apiifolia* Swartz. The species (*M. apiifolia*) is represented by specimens from Jamaica and Cuba, while a variety (*M. apiifolia duale*) occurs in Guatemala, and is *Nephrodium duale* Donn. Smith.

DIXON[14] has reported upon a collection of mosses from Borneo, showing that our knowledge of the moss flora of the tropics is comparatively meager. The list includes 133 species, 13 of which are described as new. Attention is called especially to the "peculiar ecological distribution of the remarkable and striking genera *Syrrhopodon* and *Calymperes*."—J. M. C.

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[8] BLAKE, S. F., Contrib. Gray Herb. no. 47. pp. 122. *pls. 2.* 1916.

[9] BRITTON, N. L., The vegetation of Anegada. Mem. N.Y. Bot. Gard. **6**:565–580. 1916.

[10] ———, Studies of West Indian plants. VIII. Bull. Torr. Bot. Club **43**:441–469. 1916.

[11] BURT, E. A., The Thelephoraceae of North America. VI. Ann. Mo. Bot. Gard. **3**:203–241. 1916.

[12] ———, The Thelephoraceae of North America VII. Ann. Mo. Bot. Gard. **3**:319–343. *figs. 14.* 1916.

[13] CHRISTENSEN, CARL, *Maxonia*, a new genus of tropical American ferns. Smiths. Miscell. Coll. **66**:no. 9. pp. 4. 1916.

[14] DIXON, H. N., On a collection of Bornean mosses made by the Rev. C. H. BINSTEAD. Jour. Linn. Soc. Bot. **43**:291–323. *pls. 26, 27.* 1916.